Remarks by the Honorable Sean O'Keefe
NASA Administrator
University of North Dakota
Commencement Address
Alerus Center
Grand Forks, North Dakota
"Pioneering the Future"
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Good afternoon. And thank you President Kupchella (Dr. Charles Kupchella). That was a very thoughtful introduction and one that reminiscent of the famous John F. Kennedy line, where I wish my parents were here. My father would have been proud and my mother might have believed it. The less charitable version of my resume that you've just heard is my wife's. She says it is just testimonial to the fact that I can't keep a job.

But I do very much appreciate your kind invitation to speak to the University of North Dakota's very accomplished class of 2004. This is

my privilege and my honor and I thank you for that Mr. President.

First and foremost we need to acknowledge the most important people here. Would the soon-to-be-graduates, assuming the faculty doesn't change their mind in the next few minutes, please rise and join me in recognizing the people who have really made all this possible – your family members. Please join me in a round of applause for them.

Outstanding. You are a very responsive class. Thank you all. Indeed, your parents are probably the proudest people here today, and justifiably so.

I know the primary job of a commencement speaker is to be brief and be gone. (Laughter). A little less enthusiasm for that particular line would have been appreciated, but ok. I know that all that stands between you and the fulfillment of your achievement is me.

Being a commencement speaker is a little bit like being the principal at an Irish wake. It's absolutely essential that you have one in order for the party to begin, but you don't expect him to say anything. So I understand that.

Certainly the most that any commencement speaker ever hopes to convey is one or two nuggets you can take away and say, "Well, that was memorable." I'll try not to disappoint on this score.

And so the two points I hope to convey today are about the values of public service and the possibilities to be achieved if only we yield to the human desire to explore.

As you might expect, at NASA we believe President Bush's vision to extend civilization's horizons to the surfaces of planets beyond our own and explore there will be a significant part of that future that you will enjoy.

Most fittingly for those of you who live in this beautiful state, the passion of the American people for exploration and discovery stems in large measure from in large measure from our human desire to do so and from what happened two centuries ago in the vast American wilderness at that time.

Those who have studied our heritage of exploration will recall that exactly 200 years and one day ago, on May 14, 1804, the Lewis and Clark Expedition set off of their epic voyage from Camp Dubois on the east bank of the Mississippi River near St. Louis, a voyage that would take them through much of the territory of North Dakota.

The stories that Meriwether Lewis and William Clark and their Corps of Discovery brought back from their two year journey—of endless buffalo herds, of great short and tall grass prairies, huge mountain ranges and of a flourishing civilization of

Native American tribes with names such as Mandan and Hidatsa—opened the minds of our young Nation's citizens to an age of new possibilities.

Today America's exploration reach extends from the deepest depths of the Earth's oceans to ancient seabeds on the surface of Mars, in both extremes.

Fittingly, just as North Dakota was the setting for that first great American voyage of exploration two centuries ago, this school's graduates building on their outstanding liberal arts and sciences education, are helping to lead our way into the far reaches of the space frontier.

Today, nearly 200 students will receive degrees from the John D. Odegard School for Aerospace Sciences. Based on NASA's productive partnerships with this great school, we know your graduates are well prepared to become the leaders in our nation's technological future. I had the great privilege of

spending lunch before this ceremony with Diane Odegard. And she is justifiably, as we all are, proud of the tremendous accomplishments of the school and of the great partnerships that we enjoy with them.

For example, NASA is proud to work with the University through the Northern Great Plains Center for People and Environment, to help farmers use NASA satellite data to better target pesticide and fertilizer treatments. It's a partnership that creates a win-win situation for farm productivity and the environment.

We are also very excited about the University of North Dakota's Agricultural Camera, or AgCam, an experiment designed for the International Space Station to improve monitoring of crops. And we hope upon return to flight of the Space Shuttle to the International Space Station that we will be able to

deploy the AgCam on the Space Station at the earliest possible opportunity.

NASA appreciates the great support we are getting from Dr. George Seielstad, the chairman of the Executive Management Board for NASA's Deep Space Network. This communications, tracking and navigation network is vital to ensuring the success of NASA missions that reach out throughout the solar system, and in the case of the Voyager spacecraft, to the very edge of interstellar space.

Now thanks to the robotic spacecraft guided by our scientists and engineers, we no longer think of the planets as being faceless, mostly cold distant orbs. We now see the planets as being fascinating, dynamic places that are beckoning on the next generation of explorers, our young.

The ongoing mission of our Mars Exploration Rovers, Spirit and Opportunity, demonstrate that

when you dare to ask profound questions about the universe in which we live, indeed you may very well receive profound answers. The discovery of the Rover Opportunity of the existence of an ancient salty sea on that planet no doubt has profound implications for future exploration.

What Opportunity has told us is that the climate and atmosphere of this planet was once profoundly different. And understanding why it changed may well provide a whole new perspective on our place in this little neighborhood, around this little star, in this big galaxy, in this massive universe. We are just at the beginning. We are just at the very beginning.

And back here on our own unique home in space, NASA-developed satellite technologies are helping people improve their daily lives through better weather forecasting, communications,

navigation, and as mentioned, natural resource monitoring.

In this Centennial of Flight year we should acknowledge that for all the amazing progress we have achieved in the skies and heavens above, we have also suffered enormous tragedies. Within the NASA family, we continue to reckon with the loss of the heroic Columbia crew who were tragically lost just a year ago.

Not a day goes by in which we do not miss the joyful spirit of the Columbia Seven. And not a day goes by that we aren't inspired by the courage of the Columbia families.

Still working through this wrenching experience, I have some sense of what this campus is going through as you grieve the loss of students Kayla Thompson, Miles Moen and Dru Sjodin. And indeed, when I saw the remarkable caring effort of

this student body to help out in the search for Dru, I could not help but think of what occurred a year ago when 30,000 people participated in the search for the Columbia crew and to help recover the Columbia.

It is very appropriate that the joy you are sharing with your families and friends about this great day of achievement coexists with the heartfelt sadness you are feeling for the loss of your fellow students, and the sense of community that has been in evidence since these tragedies.

Through the Columbia tragedy and the recovery efforts I have found the words from the Book of Revelation most comforting: "And God will wipe away every tear from their eyes." This passage speaks of those who rest with God. And these words also have significance for us, who are still here on our Earthly pilgrimage. God will wipe the tears away from our eyes as well. Our hope is not ultimately a

hope grounded in the progress of human achievement, as remarkable as that may be. Rather it is a hope grounded in the creator who calls Kayla, Miles and Dru and each of us by name. May we have the faith to lift our eyes toward the heavens and find there God's peace.

Recognizing that all of us are temporary passengers on Spaceship Earth, your task as you enter adulthood is to pursue a life that matters.

I hope you continue to stand as you have here at North Dakota for excellence and service to community, to causes greater than your individual self-interest.

In this regard, President Kupchella has proudly told me about the student body's commitment to public service, that again all this nation has seen in the course of these last several weeks and months.

But there are other stories as well. The members of Alpha Phi Omega, the student service organization dedicated to leadership, fellowship, and service have devoted hundreds of volunteer hours in support of the Boy and Girl Scouts, local nursing homes and community food drives. Your Greek organizations have also heeded a call to public service.

I hope that as graduates you will build on this great spirit of philanthropy, service and community, which clearly has developed during your time here.

This is an extraordinary time in our country's history. And while the news is currently dominated by acts of revolting behavior, it should not for a minute diminish the spirit of generosity and caring certainly that is characteristic of the citizens of this great nation.

Americans have demonstrated, through countless acts of kindness, that our country's greatest strength

lies in the hearts and souls of our citizens. As new college graduates, you now have the opportunity to share your time and talents with others who need it most.

Indeed, the President has asked all Americans to dedicate a part of our careers in service to others.

The President created the USA Freedom Corps to help Americans answer his "call to service" by providing meaningful opportunities to serve both at here at home and abroad.

And along your career development path, I encourage you to give the Freedom Corps serious consideration at some point. Service like this will provide you the opportunity to help countless others and by doing so enrich your own lives.

In the years ahead, bolstered by this your liberal arts and sciences education, each you will have an

opportunity to help make America a better place for all of us as citizens.

You can help us protect our homeland security, promote democracy abroad, fight new and deadly diseases, enhance environmental quality, improve our schools, advance economic and technological progress, and, as the President has proposed, participate in a renewed spirit of discovery in our country.

As this second century of flight unfolds, those of you who will pursue science and technology careers will help carry the torch of exploration to heights unimagined and into frontiers unknown.

While we have indeed accomplished a great deal in 45 years in NASA's history, we are just now at the very beginning of the age of space exploration. It was very much reminiscent of the period I referred to when Lewis and Clark began their expedition 200.

I'm reminded of a remarkable piece that David McCullough wrote just a few years ago -- a historical biography of John Adams, the second President. He points to Adams' lament that the flagship of the U.S. Navy, the USS Constellation, which was commissioned as a demonstration of resolve to people around the globe that we intended to be global players, that we intended to engaged in world commerce, laid at anchor, day after day after day because the weather wouldn't permit it to sail.

We are in the same mode right now in space exploration. We are in an age of sail. Everything must be exactly perfect for everything to occur exactly right, and particularly the weather.

We are indeed aspiring to an "Age of Steam." Your generation is privileged to be alive when for the first time in human history we have the ability to enter that "Age of Steam" in space exploration. More

than a few of you I am sure will join NASA and the broader aerospace community in helping us to achieve that objective.

As the men and women of NASA implement our bold exploration vision, which the President has articulated, we will work with our international partners to extend the reach of human civilization and the spirit of freedom ever outward, using a meticulous stepping stone approach.

Now many of you are probably familiar with that stepping stone approach because in the last four months we have had about 125 million visitors to the NASA website. And over the course of that time that has accounted for the over 10 billion hits that we have had to our website in that four month span. My guess is that many of you are aware of the parameters in which we are proceeding because that strategy is very present on the web site and very clearly evident.

But to help refresh memory or familiarize those who aren't aware of the strategy here's what it entails.

First, we will return the Space Shuttles safely to flight and in so doing honor the legacy of our remarkable Columbia crew.

Second, we will complete the International Space Station and use this research laboratory that orbits 250 miles overhead at this very moment to test the long-term effects of space travel on human beings and to make advancements in science and technology that can only be achieved in microgravity. At present the Expedition Nine Crew is aboard, Mike Fincke and Gennady Padalka, a Russian cosmonaut. And this marks nearly four years of continuous presence in space in which humans have lived in this condition

Third, we will send robotic probes and then human explorers on to the Moon to demonstrate technologies needed for Mars and beyond.

And finally, through an effort aptly named Project Constellation, recalling John Adams' lament of 200 years ago, we will develop those capabilities that will allow humans to explore the farther reaches of the solar system and the capacity to do so in a timely enough manner to inform.

This approach will allow us to learn from our experiences and to incorporate new technological developments along the way.

Just think about the compelling scientific discoveries that the continued exploration of space will bring about in the coming decades.

Indeed, when the history of your time is written, we can well imagine that your generation of explorers will have sought life's abodes in other corners of the universe.

You will be able to look up to the stars that once guided Constellation and the sailing vessels of yore

and instead be mapping continents on dozens of those planets that surround the stars--and we are just now discovering how many of those planets there are--and in so doing gather knowledge that may help improve our own human condition here on this planet.

Our work on the President's vision will spur other technological developments that will lead to new products and services and tangibly improve the lives of people throughout the globe.

Just as the Apollo program led to important advances in computing and electronics and more recent space activities led to the development of MRI's, cataract detection, and heart pumps…we believe as well that the technology development necessary to execute and implement this exploration objective will accelerate advances in a number of these cutting edge areas. And every dollar that will

be spent will be spent right here on Earth. There isn't any money spent in space for space exploration.

The future technologies we will all use as humans here on this globe include robotics, autonomous and fault tolerant systems, human-machine interfaces, life support systems and novel applications of nanotechnology and microdevices.

Those of you who engaged in laboratory work on enabling technologies will be in a great position to enhance the overall economic strength of this nation as well.

We are optimistic that this program boosts the opportunities we will have to become a smarter, safer, healthier and more intelligent world. And if we do it right, on a scale never seen before in the history of the planet, at a pace hardly thought possible. Indeed, if you think of the developments of the last century, all of them were predicted to be way outside

the realm of what could be predicted reasonably. We can do this. And great nations indeed do great things.

But in sharp contrast to the Apollo era, for which the price of being second was that we lost, this is not a race. Instead it will be a journey, propelled by a renewed spirit of exploration and discovery.

The first explorers to set foot on Mars may well indeed be sitting in this audience today. You will have the means to make this vision come to pass, as we all do as humans. The President observed, and I think most aptly, "Exploration is not an option we choose. It is a desire written in the human heart."

Now I would like to do something that we believe hasn't ever been done before at a university commencement. Please allow me to invite another NASA colleague to offer his congratulations to you as well.

Remarks by Astronaut Mike Fincke, Expedition Nine Science Officer, International Space Station, University of North Dakota Commencement

Hello down there in North Dakota.

I am Mike Fincke, NASA's Space Station science officer and flight engineer onboard the International Space Station.

It is a distinct honor for me to join Administrator Sean O'Keefe in saluting the University of North Dakota's class of 2004.

Congratulations to all of you!

I feel privileged to be the first orbiting astronaut to speak to a universities' graduating class.

Cosmonaut Gennady Padalka and I are conducting research that will help pave the way for future space explorers to extend humanity's reach throughout the solar system. I hope many of you will have an active role in this great adventure.

We are also savoring the wonderful opportunity to look down upon the good Earth from our orbital vantage point.

From space, North Dakota's vast rolling plains provide a wonderful, welcoming sight.

From 250 miles up, we are struck by the beauty and preciousness of creation. All of us are fellow travelers on spaceship Earth. I also hope the Class of 2004 will use well your talents and skills in order to help make this a better world.

Congratulations once again. And while you are celebrating tonight, please keep your porch lights on in Grand Forks so Gennady and I can toast you as we fly over.

Continuation of Remarks by NASA Administrator Sean O'Keefe

I told you I hoped at least one thing would be memorable. I hope you can tell your kids and

grandkids that you were part of the very first graduating class ever to be addressed by a speaker from outer space. (Applause)

That was really relatively speaking a cakewalk. They are only 250 miles away. Every day we communicate with two little rovers, roving around Mars that are 125 million miles away. And unlike the time lag for the Space Station which is very short, it takes 10 minutes to send a signal to Mars. That is part of the challenge for your generation, to shorten that time.

Incidentally, do keep those porch lights on tonight. If you step outside about 10:30 p.m. and look in the lower eastern sky, about 20 degrees north of the horizon, you will have an opportunity to wave at Mike and Gennady as they pass overhead for about a minute and a half.

In closing, I wish to congratulate all of you on your achievements up to this special point. I congratulate your family members who have put up with you through this entire experience, your faculty members who have attempted to guide you to this day, sometimes with success, sometimes with less than your full participation, and I wish all of you the very best in your pursuit of a life that matters, in rising to interests that are greater than your own.

Thank you and Godspeed to the graduates of the class of 2004.